

IN THE SPECIFICATION

Please amend the specification as follows.

Please amend the paragraph beginning at page 6, line 21, as follows:

FIG. 1 depicts a pictorial representation of a simplified manufacturing process for items. Items, in an embodiment, include integrated circuits. The item undergoing processing 101 enters the process 110 and exits as a finished product 102. The process 110 is located in a larger manufacturing facility 120. Conditions in the machine performing the process are very important to the quality of the end product 102. The conditions of the item undergoing processing 103 are also very important to the quality of the end product. In addition, the conditions of the manufacturing facility 120 may also impact the quality of the end product. Measurements may be taken on the item 101, 102, and 103, as well as conditions of the actual manufacturing process 110. These measurements can be called production data. The production data is from sources that are directly related to the manufacturing process being performed. These sources include, but are not limited to, test probe data, parametric data, film thickness data, and critical dimension data. In an embodiment, a particular production data sample is gathered once per lot, i.e. production lot data. A production lot can be defined as a subset of the entirety of manufactured items, for example a plurality of work pieces such as electronic devices, integrated circuits, substrates, semiconductor wafers, or other similar structures in this art. A lot may further be considered as that quantity of product produced under similar conditions, at a similar establishment, over some period of time. In an embodiment, a particular production data sample is gathered multiple times per lot. In an embodiment, a particular data sample is applied across multiple production lots. Though this detailed description uses the term production data to refer to these data measurements, this is not to be taken in a limiting sense, as any data that relates directly to the manufacturing process being performed is considered to be production data, ~~regardless of what it is actually called~~. Further, production data may be further defined as being either online or offline. Online data may be data which is measured directly on the item being manufactured and may be things such as the temperature of the manufactured item, or its

thickness. Online data may also be data measured from the manufacturing process in question while the item is being processed. Offline data is that data that, though directly related to the manufacturing process, is not measured on the actual manufactured item or during the actual manufacturing step, such as the operating temperature of the machine, the operating pressure, or some other measurement.

Please amend the paragraph beginning at page 7, line 23, as follows:

The pictorial element labeled **120** represents the entire facility in which the manufacturing process resides. Measurements may be conducted on the entire facility, as well. These measurements can be called non-production data or alternatively, facility data. The non-production data is from sources not directly related to the manufacturing process. These sources include, but are not limited to, atmospheric conditions, water conditions, gas conditions, chemical conditions, exhaust pressure, and electrical conditions. In an embodiment, a particular sample is gathered from one location by one sensor. In an embodiment, a particular sample is gathered from multiple locations by multiple sensors. Alternatively, these measurements may be called facility data as they generally, but without limitation, relate to the facility in which the production takes place. Though this detailed description uses the term non-production data, or facility data, to refer to these data measurements, this is not to be taken in a limiting sense, as any data that does not relate directly to the manufacturing process can be considered to be non-production data, or facility data, ~~regardless of what it is actually called~~. This data is inputted into a data processor **130** for further analysis.

Please amend Table A on page 12, as follows:

Process	Time of Event	Sampled Value	Calculated Sampled Value assigned to Production Lot
Sample 1	tS_1 tS_1	S_1 $[S_1]$	
Lot 1	tL_1 tL_1		$L_1 = 1/(tS_2 - tS_1) \{S_1(tS_2 - tL_1) + S_2(tL_1 - tS_1)\}$ $L_1 = 1/(tS_2 - tS_1) \{S_1(tS_2 - tL_1) + S_2(tL_1 - tS_1)\}$
Lot 2	tL_2 tL_2		
Lot - i	tL_i		$L_i = 1/(tS_2 - tS_1) \{S_1(tS_2 - tL_i) + S_2(tL_i - tS_1)\}$ $L_i = 1/(tS_2 - tS_1) \{S_1(tS_2 - tL_i) + S_2(tL_i - tS_1)\}$
Lot - $i+1$	tL_{i+1}		
Lot - $i+2$	tL_{i+2}		
Sample 2	tS_2 tS_2	S_2 $[S_2]$	
Lot - j	tL_j	L_j	$L_j = 1/(tS_3 - tS_2) \{S_2(tS_3 - tL_j) + S_3(tL_j - tS_2)\}$ $L_j = 1/(tS_3 - tS_2) \{S_2(tS_3 - tL_j) + S_3(tL_j - tS_2)\}$
Lot - $j+1$			
Lot - $j+2$			
Lot - $j+3$			
Lot - $j+4$			
Lot - $j+5$			
Lot - $j+6$			
Sample 3	tS_3 tS_3	S_3 $[S_3]$	
Lot - k	tL_k	L_k	$L_k = 1/(tS_4 - tS_3) \{S_3(tS_4 - tL_k) + S_4(tL_k - tS_3)\}$ $L_k = 1/(tS_4 - tS_3) \{S_3(tS_4 - tL_k) + S_4(tL_k - tS_3)\}$
Lot - $k+1$			
Lot - $k+2$			
Lot - $k+3$			
Lot - $k+4$			
Lot - $k+5$			
Sample 4	tS_4 tS_4	S_4 $[S_4]$	
⋮	⋮	⋮	⋮